Cholera Infantum

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A dissertation on the disease called, Cholera Infantum.

When we reflect on the nature of this disease, the mortality which follows its steps, and the frequency of its occurrence; it must strike the mind with surprise that it has been so astonishingly overlooked by the Medical world. Neither among the writings of the Medical literati of our own country, nor of Europe, is there a line to be found which might lead us to believe that it was noticed as a distinct disease, till the time of Dr. Rush, except a mere hint by Cleghorn on the diseases of Minorca.

It is to the enlighted of our own happy country that we are indebted for the history and treatment of this disease, and particularly to Dr. Rush who has given the most interesting and elaborate account of C. Infantum. It has since been noticed by Dr. Miller of N. York and Dr. Jackson of Boston, but their accounts of the nature of the disease, differ in no very material point from that of Dr. Rush. Although the latter has given so good an history of the disease before us,

yet he was certainly mistaken in his pathological views on the disease, and we are indebted to the Professor who now occupies his chair for the most correct theoretical views of the subject and hence for the most judicious practice.

Cholera Infantum, as its name imports, is peculiar to children. It appears in them from the age of one or two weeks after birth, till the age of two years. It is a disease of warm climates appearing most generally as an endemick in the spring and summer months. It is distinguished in Charleston, by the name of the "April and May disease;" from its appearing in that climate generally in those two months; but it is seldom seen in Philadelphia, says Dr. Rush, till the middle of June or beginning of July and generally continues till near the middle of September. It seems, from the accounts given by all who have noticed it, to be brought on and highly aggravated by the heat of the weather, producing in the little victims, great relaxation and debility, which is a favourable state for the reception of morbid impression.

It is often ushered in with diarrhoea of a form so mild as to excite no great solicitude respecting the result, and which

continues for several weeks without superventions of any Gastric irritation. Sometimes it commences with nausea and vomiting alone, and not unfrequently it assumes at the commencement, the ~~form~~ of the C. Morbus of adults. In these different modes of attack, the matter discharged, generally evinces the presence and hasty accumulation of bile. It is most commonly of a green or yellow color, but sometimes it is limpid and without bile, resembling drinks and aliments which have been taken into the stomach. Worms are not unfrequently discovered in these different kinds of excretions. At this time the child often seems to be in great pain, and it is frequently, only by this and the following symptoms that we are capable of forming our opinion as to the nature of the case: such as, great restlessness, showing no disposition to be appeased or quieted, a forcible drawing up of the knees, frequent and sudden screaming. We frequently observe a great inequality in the temperature of the body: the head communicating a sense of great heat and apparent fullness, while the feet at the same time not unusually warm and sometimes quite cold. The pulse quick and weak. Delirium now comes on. The child tosses itself about, throwing its

head backwards, which leads us to believe that there is a great determination to the head. Sometimes it attempts to scratch and bite its attendants and often itself.

The fever, says Bleghorn is periodical, but of the erratic kind without any fixed type. It is said by Dr. Rush to have assumed the Remittent type discovering evident exacerbations especially in the evening. The late Dr. Barton, in his lectures, delivered in this University, thinks it sometimes puts on the character of an Intermittent, sometimes of a Remittent, and that it is not unfrequently erratic.

It appears to be wholly influenced by, and assuming the type of other diseases occurring in the same situation, and produced by the same causes, whether Intermittent, Remittent, or erratic. It is often attended with a bloated face, swelled abdomen and oedematous limbs; and so great is the thirst in every stage, that it seems impossible to hush the piteous cries, or stop the almost unceasing reachings after drink, rendered so desirable by the dry tongue and fauces. The eyes are languid, hollow and so insensible to light or extraneous substances, that flies have been seen to light on them when only half closed, as

is their general position when sleeping, without exerting any motion whatever. The disease is sometimes fatal in a few days. Dr. Rush once saw it carry off a child in twenty-four hours, but it is generally protracted for several weeks, with occasional variations in its appearance. It is much influenced by the state of the weather; hot weather increases its violence, but cold weather, on the contrary, disposes it to a more favourable termination. When the disease has been kept up for some time, the approach of death is gradual and attended with a number of distressing symptoms; an extreme emaciation of the body, a sharp and lengthened face, aphtha in the mouth and throat, singultus and convulsions; then death almost inevitably and rapidly succeeds and closes the truly tragic scene.

This, like all other diseases which are imperfectly understood, have been ascribed to several causes; as Worms, dentition, summer fruits, and miasmatic poison.

That worms are not the cause of C. Infantum, is sufficiently proven from its not yielding to the best anthelmintic medicines; from no worms, in a majority of cases, being discharged during the progress of the disease, and from none being

detected in the alimentary canal from dissection after death produced by this disease. On the contrary, so far from thinking them a cause of disease, some writers have suggested that worms are necessary to the health of children. Dr. Rush was of this opinion. He says, "When we consider how universally worms are found in all young animals, and how frequently they exist in the human body without producing disease of any kind, it is natural to conclude that they serve some useful and necessary purposes in the animal economy. Do they consume the superfluous aliment which all young animals are disposed to take before they have been taught by experience or reason, the bad consequences which might arise from it?"* This learned writer, even goes further. "Is it not probable, that children are sometimes disordered for the want of worms?"† This opinion, though apparently too enthusiastic, at all events may go strongly to disprove the probability of worms being a cause of C. Irritantum. It is not uncommon for authors, though distinguished for their correctness of observation, to be led into error while seeking an hypothesis. Men are apt to believe too much than too little. It is certainly evident that great irritation of the alimentary canal, and con-

* Rush's Works – pg. 217
† " " " 219

sequently, fever is often produced by the presence of worms, and although they have never been found to be a cause of the disease under consideration, may they not when present at the time, protract, and aggravate the disease?

As much may be said of dentition. C. Infantum is confined to certain seasons of the year, but dentition is not. The former often seizes children before and as often after the period of the latter, though they are sometimes contemporary, and when this is the case, Cholera is undoubtedly aggravated; for dentition of itself often produces diarrhoea & fever but differing in some respects from the disease before us.

As respects summer fruits being a cause of C. Infantum, there is by no means an unanimity of opinion. A respectable writer, observes, "It is a popular belief, that ripe fruits are innocent; some think salutary. This is an error fraught with mischief. Whether ripe or green, although most so in the latter state, they are certainly productive of the complaint we are considering."* In construction, diametrically opposite, Dr. Rush, whose observations are always heard with deference, says, "that the disease

* Remarks on C. Infantum by Dr. Caldwell. C. Cullen vol. 2. pg. 251

is little known in country places where children eat much more fruit than in cities. As far as I have observed, I am disposed to believe that a moderate use of ripe fruits rather tends to prevent, than to induce disease.* Dr. Klapp's observations, which certainly merit attention, go to corroborate those of Dr. Rush. A medium here, which is often the safest, appears to me least questionable. A few apparently well marked cases of C. hepatitum came under my notice in South Carolina in the year 1817 at a season when the fruits of various kinds were not yet ripe, and from every circumstance I was induced to believe that they were induced by an improper use of the unripe fruits of the season. At that time there were but few or no miasmatic diseases, hence I infer that these cases were not produced by their most common causes. Is it irrational to suppose that highly indigestible unripe fruits, taken into a stomach, the habits of which are not matured by age, particularly when the susceptibility to morbid impressions is increased by the summer heat, should be adequate to the production of such a disease? But I am disposed to

* Rush's works.

believe that a temperate use of ripe fruits are of themselves harmless and in some cases even beneficial. They would seem to be serviceable, at least, when worms were present to aggravate the disease. A learned writer observes, "Nature has wisely guarded children against the morbid effects of worms, by implanting in them an early appetite for common salt, ripe fruits, and saccharine substances, all of which appear to be amongst the most speedy and effectual poisons for worms."* Nor are they alone important in these cases, but they appear to be beneficial in obviating the consequences of a wrong action in the liver, a circumstance that requires some attention in the treatment of the disease before us. The same writer observes, "The bile is a necessary part of the animal fluids, and yet an appetite for ripe fruits &c. seems to be implanted chiefly to obviate the consequences of its excess, or acrimony, in the summer and autumnal months."

With this, I shall proceed to what I deem the most common cause of C. Infantum.

When we take into view the time of its appearance,

* Rush's Works -

which, in Philadelphia, as before mentioned, is about the middle or beginning of June, but in warmer climates, as in Charleston, at an earlier period; and the diseases with which it generally comes hand in hand, as Intermittents, Remittents, Dysenteries &c. we are compellie to draw a conclusion that it must be, like its companions, most generally, a miasmatic disease, in other words, a disease arising from an impure atmosphere. The miasmatic poison arising from the putrefaction of animal and vegetable matter, charges the atmosphere and not unfrequently discovers itself in the production of C. Repantium before any other of the diseases of the season. In adults, where the animal functions are completely devellopie and strengthene by habit, the acrimony of the miasmatic poison is often blunted and renderie incapable ~~of~~ of acting upon a constitution sufficiently robust to resist the debilitating influence of the summer season. But at an early age, where there is an imperfect devellopement, and a great demand for all the energy and vitality to complete the yet unfinished fabrick, the powerful effect of a summer

sum, easily breaks through the feeble extenuation, enervates the system thereby rendering it alive to every morbid impression. Hence the susceptibility of children to disease, sooner than adults. And for the devellopement of the disease already existing in the system, there are not wanting many exciting causes, as errors in diet, the sensible qualities of the atmosphere &c. That the morbific influence of these miasmata over the system, whether originally exerted through the medium of the olfactory nerves, the lungs, or whether carried directly into the alimentary canal, takes its seat and throes in the stomach, and not in the biliary organs, as some have supposed, is made evident from dissection. The brain exhibits no morbid appearance and the viscera of the thorax are as little affected. It is on the contents of the abdomen that the disease expends its whole force, and particularly upon the mucous membrane of the alimentary canal. Dark livid spots are to be seen on this coat of the stomach and small intestines, but especially the duodenum: And hence I infer that the true seat of the disease is in the

stomach involving the canal in its disorder by continuous sympathy. The hepatic apparatus is much deranged, the liver most generally increased in size, and its secretion variously vitiated and altered in its nature, but every circumstance compells us to say that it is most probably like C. Morbus, in the commencement a gastric disease secondarily affecting, by sympathy, the biliary organs.

Considering the situation of the stomach in the centre of the system, the importance of its functions, its great supply of nerves which serve it to give early information of any invasion, its great supply of blood to aid and support it in all its operations, and the harmonious connection of the whole system; we are induced to believe that the first link of the great chain, is seated in that organ, that it is the "punctum saliens" the point of action, and that its pervasion through the whole system, is as radii from a centre. If this be so, the objects in view in the treatment of this disease, are obvious; and the first indication to be pursued, is

evinced by the primary symptoms.

To be more explicit in the treatment, it would seem proper to make some methodical arrangement of its several indications, which I have done in the order in which they seem to present themselves.

1st. The controlling of Gastric & Intestinal irritability.
2nd. The obviation of Intestinal inflammation.
3rd. The alleviation of chronic Intestinal irritation.
4th. Removing supervening debility.

As before mentioned, the disease usually commences with a disordered condition of the stomach & alimentary canal. But as ~~the~~ regards the precise course to be pursued to meet this, the first indication, there is by no means a little difference of opinion. Purgatives are sometimes employed in this stage of the disease, such as, the oleum ricini &c. but this is certainly unavailing unless in very mild cases. In cases attended with great gastric irritability, such medicines cannot be retained. It then becomes necessary to resort to those medicines which are calculated to calm and quiet the irritability of that

organ: These are fomentations to the epigastric region, warm bath, anodyne injections, blisters over the region of the stomach. Internally, limewater and milk, of each a table-spoonful, a favourite remedy, in such cases, of our distinguished Professor of the practice of Physic. The saline draught is also highly serviceable, as it not only tends to quiet a disordered stomach by its own action, but by producing a determination to the surface. Opium is not less beneficial, and to these may be added many other articles, as cordials &c. Well adapted as these may seem, in very violent gastric affections, they sometimes fail. In this place, where there is incessant vomiting, thirst, febrile heat on the surface, and a quick and irritable pulse, nature appears to point out and urge the remedy best adapted; which is an emetic, and for this purpose, Ipecacuanha is preferable. Notwithstanding many practitioners condemn this practice, it is recommended by Dr. Chapman whose correctness of observation and practice is not to be questioned. He says, "certainly when

there is no reason to suspect active inflammation of the alimentary canal, they may safely and effectually employed. They relieve the stomach of its contents and impart tone and strength to that organ so as to prevent the recurrence of vomiting. But they do more. By determining to the surface they invite diseased action from the internal parts and equalize the action and excitement of the body. To aid in the first indication, so soon as the stomach is sufficiently quieted to retain medicines, purgatives may be administered with advantage, and Calomel appears to be best adapted. It not only thoroughly evacuates the contents of the stomach and intestines of their offending matter if there be any, but it certainly has a specific action in correcting a wrong action of the hepatic system which may, perhaps, by this time, have been sympathetically brought into a disordered state, thereby keeping up irritability of the stomach and intestines. It is further best adapted, because its dose is very small in quantity, and its taste can be easily disguised; besides, its

specific gravity is so great that it will not be easily rejected. The value of this medicine is not a little increased by the addition of opium, which will not only retain the calomel longer that it may have its full action, but mitigates or entirely removes any spasmodic uneasiness. If prejudice or other circumstances may forbid the use of Mercury, we may resort to the use of the Neutral salts which are well suited to the diseases of the bowels. Among these, the Sulphate of Magnesia, or Epsom salt, is thought to best suited particularly in cases of children. It appears to have the power, besides simply evacuating the contents of the alimentary canal, of quieting the irritability of the stomach which is of great moment in the treatment of the disease under consideration.

Being fully persuaded, and having so good authority as our Professor of the practice physic, that the discharge is produced and kept up from a primary irritation seated in the stomach, I would not recommend purging very copiously, unless there were great

accumulations of bile. It appears only important to make use of such remedies as are calculated to quiet the irritability of that organ, and the discharge will gradually subside. Purgatives, on the contrary, when used too freely, must certainly be injurious by giving a centripetal direction to the circulation, and thus consequently producing intestinal inflammation, the prevention and treatment of which brings us to our second indication.

The remedies that are useful in the second indication, which is to prevent and meet inflammation, are well adapted to the first if it should remain. These are, first, venesection. The character of this disease, as most other bowel diseases, is for the most part invidious; it ought therefore to be used with caution, but at the same time, with a liberal hand when the case demands it. Dissections prove to us how fatially it has often been neglected. If we take the pulse for our criterion, we will most certainly be lead into error. In opposed states of the system, when the pulse would indicate

the most exhausted condition, venesection is the sure, and in many cases, the only remedy; but it must be used with circumspection at first, till the system react, then detract copiously. It is the opinion of Dr. Chapman, that it has heretofore been used too sparingly. The detraction of blood is not only serviceable in inflammation by lessening the circulating fluid and producing an equilibrium in its distribution, but it prepares the way for other remedies not less important. After the alimentary canal has been properly evacuated, and arterial action lessened, it may be proper then to administer such medicines as may produce a determination to the surface. These may be so combined as to lessen the existing irritation, and to act on the biliary organs, while they determine to the surface. For this purpose, take opium, calomel and ipecac. in such proportions as are adapted to the age of the child and circumstances of the case.

To aid in this point, the warm bath is eminently serviceable, and particularly in restoring that equilibrium of temperature on the surface, which, as before

stalid, is often wanting. This should be used daily and oftener if necessary. It may be rendered more stimulating if required, by the addition of salt, Mustard, Cayenne pepper, or ardent spirits &c. As auxiliary to the revulsory measures, and not less important, we may apply blisters to the epigastric region, to the abdomen, or extremeties.

After inflammation of the intestines has been reduced, there still remains a diseased action, perhaps confirmed by habit, which keeps up the discharge attended with tormina and tenesmus, and not unusually with gastric irritability. This is our third consideration. By composition, medicines are happily adapted to several symptoms at the same time, and here we may so combine them as to meet these several indications. In the first place, we must have an eye to the state of the stomach, which, perhaps, may be irritated by an excess of acid; to meet this, the alkaline and cretaceous medicines are best suited, and any one of these, when combined with an anodyne, forms a

prescription well adapted to present circumstances. The following articles are preferred. Lime water, carbonate of Potash, or Creta ppt. with laud. to which may be added, some carminative as Cinnamon or peppermint water &c. with a little sugar or mucilage. Rhenbarb may sometimes be added to these prescriptions with great advantage. Under these circumstances when their is much acidity and great intestinal irritation, a favourite prescription of Dr. Chapman's, is the following.

℞. Ol: Ricini ℥j. Sac: album ℥j. The whites of eggs ij. Rub down the whole together till a complete mixture is formed, then gradually add, stirring them at the same time aqua calcis ℥v. Tinct. Opii xx gtts. This, he informs us will remain on the stomach when other preparations of opii will be rejected. The irritation is often excessive and to subdue this, anodyne enemata will be found best adapted. Fomentations, warm bath and blisters should also be used in this stage to subdue irritation and counteract disease action.

The disease not being checked at this stage,

the violence of the pain and irritation subsides and we find the patient labouring under a chronic state of diarrhoea attended with, and often dependant upon debility of the stomach and intestines. Which brings us to the consideration of our fourth and last indication.

The protraction of the disease into this stage, seems to depend upon two prime causes; either debility of the stomach and intestines, they being exhausted by previous irritation, or a disordered state of the hepatic system. Whether it be dependant upon the first or second of these causes, the idication is equally obvious. If upon the first, Tonics and astringents have certainly been wisely resorted to. The whole catalogue have been employed, but many are excluded by common consent and as many more have but few advocates. Every practitioner has some one, two, or three or more of these articles which he recommends as superior to all others, while other Physicians, perhaps, exclude them as entirely inert. Without pretending to account for this discrepency of opinion, I shall go on to select those articles which stand

comparatively unimpeached. Among the mineral astringents, Alum has been used with great success, and is not a little hightened in value by the addition of Opium in the proportion of ℈j or iij of the former to ℈ss or ℈j of the latter. Moseley's solution, a preparation of Alum and Sulphas Zinci, is a remedy much extolled by some and particularly by the late Dr. Barton in chronic diarrhoea, and perhaps might be useful here from its eminently tonic powers, but from its exceedingly nauseating effects, might, perhaps, be properly excluded in favour of other articles which are without such exceptions. The Sac: Sat: has been lately much recommended, but Dr. Chapman has used it and with but little sensible benefit. We may here add that the mineral acids, as in diarrhoea of adults, perhaps might be serviceable in this disease. The Sulphuric and Nitric have been chiefly used and of these the Nitric has the greatest title to a recommendation.

There are a great variety of articles from the vegetable Kingdom that are important acquisitions in the treatment of this stage of the disease before us, as Kino,

Galls, &c. These are often advantageously prescribed in combination with the cretaceous preparations and Tinct. Opii. Among those of the highest reputation in this city, is the Hæmatoxylon campechense which is not a little inhanced in value by being used and highly recommended by our very learned and eminent professor of Surgery. It may be administered in the form of infusion in the dose of a dessert-spoonful every two or three hours. Another which is recommended and preferred to all others by Dr. Chapman, who has had ample testimony, from personal experience, of its utility in this stage of the disease, is the Rubus Procumbens (or Dewberry). He observes, "that the root of this plant is an agreable aromatic, and not only lies well on the stomach, but is so powerful and active an astringent, as often in a few days to put an end to the complaint; and sometimes it even becomes necessary to prescribe laxatives after it." To prepare it, take of the bruised root ℥j and pour on it of boiling water ℔j. The Rubus villosus is also an excellent astringent, but a little inferior to the procumbens. Mild astringent injections might not be improper in this stage of

the disease, as a combination of Starch and Milk with a small quantity of Direct. opii. But what I have reason to believe a very important remedy, is a daily use of a tepid bath of a decoction of the bark of the Red-oak, or Quercus rubra of Botanists. It is undoubtedly, eminently tonic and astringent; and does it not do good by imparting tone to the skin, which bears the closest sympathetic connection with the stomach and intestines, thereby giving tone to those viscera and disposing them to a healthy action. Besides, it may produce a slight determination to the surface which ought to be kept up by wearing Flannel next the skin. I have seen two or three children so far advanced in this stage of the disease as to be harrassed with a very sore mouth, one of the symptoms of a fast approaching dissolution, and when all other remedies were unavailing, speedily to recover under this plan of treatment. The bark waistcoat has been highly recommended by some, and, perhaps, acts upon the same principle. Might not the flannel roller be here, beneficially employed, which is re-

commended in chronic diarrhoea.

If the disease be kept up by a wrong action of the hepatic organs, we have sufficient evidence to warrant us in the belief that Mercury is safe and effectual as in diarrhoea of adults kept up by the same cause. Cheyne on bowel complaints &c. observes, "that whenever I have suspected a morbid state of the bile, which is one of the most common causes, I have used it with great success. I have by ½ grain of Calomel evening and morning, or by giving a grain every evening for a week or ten days, removed diarrhoeas, even when the medicine was administered under the most unpromising appearances.

In further confirmation of the efficacy of Mercury under the present circumstances, Dr. Underwood says, under the article diarrhoea, alluding probably to the species of diarrhoea, called, weaning brash, "In this as well as in other bowel affections, before described, when laxatives, alkalies and absorbent medicines have been found to procure no permanent good effect, calomel often proves a sovereign remedy.

The opinion and practice of Dr. Armstrong corroborates the above. These references belong to different diseases from the one before us, but being protracted by the same cause they require an identity of treatment. And further, we have the authority of almost every practitioner of medicine for the employment of Mercury in diarrhoea of adults, dependant upon a vitiated biliary secretion, which would lead us from analogy to its use in diarrhoea in children from the same cause. But if there be any circumstance which would forbid the use of Mercury, we may resort with advantage to Nitric acid. Dr. Scott, family physician to the Duke of Wellington, says that Nitro Muriatic acid is incomparably superior when the disease is kept up by a diseased liver.

But in spite of Medical skill this disease not unfrequently rushes on with rapid strides to a fatal termination. And when medical pride has been forced to bow in submission to this intractable monster, a removal to the country has produced an immediate and happy change in the patient. And it is now strongly inculcated by every writer on the subject, to resort to an early removal to the country. But if from

pecuniary, or other circumstances it is impracticable, the daily practice of carrying the patient in an open carriage to a purer atmosphere, is important. But what Dr. Chapman has found ever preferable from much experience during this last summer and previously, is the motion of a boat when practicable, and he recommends that the children in this city should be carried in a boat across the Delaware several times during the day. But to hasten the cure and prevent a relapse, all exciting causes must be studiously avoided. Strict attention must be paid to the regimen and clothing of our patient during the whole progress of the disease. During disease, the diet should be light and easily digested, as Milk, sago, tapioca &c. the drink mucillaginous. But during convalescence, the diet should gradually become more nourishing. Flannel should be worn next the skin. the feet should particularly be kept warm by wearing worsted stockings; for diseases of the bowels are more highly aggravated, and more frequently occur from a want of precaution on this point than almost any other.

When the patient is evidently recovering, the vegetable

bitters, as P. Bark, Quassia, centaury, columbo &c. and preparations of iron, with the occasional indulgence of a little Port or Claret wine, will impart tone to the system and confirm convalescence.

Having drawn the subject of my dissertation to a conclusion, I shall, from a confidence of your liberality and your knowledge of the unfavourable circumstances under which we labour from a want of time and experience, pass by any apology for its imperfections. But a conscious sense of my duty, with a pressing weight of gratitude, compells me to embrace this opportunity to tender my grateful acknowledgements for the apparent earnestness and industry with which you have endeavoured to instill into our minds, so much useful knowledge.